

distributors and their subscribers, an aggrieved MVPD could seek redress by filing an 'unfair practices' complaint under Section 76.1001 of the Commission's Rules."<sup>16/</sup> Thus, given the broad discretion the Commission already possesses by statute, it is unnecessary to supplement that authority with additional rules specific to DBS. Furthermore, in view of the uncertainty associated with the future of DBS service, the built-in flexibility of Section 628(b) and the Commission's implementing rules enable the Commission to constrain anticompetitive behavior, while at the same time fostering the development of the DBS industry as a whole.

With respect to preventing other types of discriminatory conduct by a DBS operator that could inhibit competition in the video marketplace, Section 616 of the Act contains broad prohibitions protecting program vendors against anticompetitive practices by all MVPDs, including DBS operators.<sup>17/</sup> DBS operators may not demand as a condition to carriage a financial interest in the video programming to be distributed over the system;<sup>18/</sup> are prohibited from coercing video programmers to grant exclusive distribution rights, or retaliating against such vendors who refuse to grant such rights;<sup>19/</sup> and may not discriminate

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<sup>16/</sup> See Memorandum Opinion and Order on Reconsideration of the First Report and Order, 76 R.R.2d 1177, 1187 (¶40) (1994) (the cited regulation mirrors the provisions of Section 628(b) of the Act). The Commission also stated that its implementing rules: "will afford the Commission the opportunity to consider all the ramifications of such contracts, including the effect on competition, based upon the particular facts of each case. This case-by-case review will avoid amending a Commission rule to create an overly broad *per se* prohibition that appears to be contrary to Congress' intent." *Id.* at ¶41.

<sup>17/</sup> 47 U.S.C. § 536; 47 U.S.C. § 522(12).

<sup>18/</sup> 47 U.S.C. § 536(a)(1).

<sup>19/</sup> 47 U.S.C. § 536(a)(2).

against unaffiliated video programming vendors.<sup>20/</sup> These restrictions are sufficient to prevent a DBS operator from engaging in conduct that would disadvantage its competitors or otherwise hinder competition in the distribution of video programming.

In declining to impose special restrictions on DBS operators, the Commission should recognize the pivotal role of original programming in drawing an audience to a new distribution service. Like cable in its early years, DBS operators should be given the opportunity to utilize exclusive programming agreements as a means to attract viewers to what is still a relatively new video distribution alternative.

To the extent that prohibitions are adopted with respect to such agreements, they should apply only when the DBS operator is affiliated with an MVPD with market power (as described in Section B.4.a. above), and should simply restrict exclusivity to a single orbital location.<sup>21/</sup> To avoid unnecessary disruptions in service that may result from a DBS operator's affiliation with an MVPD that attains the specified threshold level of subscribership or market penetration, such restrictions should only become applicable 12 months after this level is reached.<sup>22/</sup>

Finally, MCI agrees with the Commission's proposal to permit DBS operators to provide wholesale distribution of digitized programming to cable operators and other MVPDs. NPRM, at ¶¶61-62. As the Commission correctly points out, such use of DBS

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<sup>20/</sup> 47 U.S.C. § 536(a)(3).

<sup>21/</sup> See generally, Implementation of the Cable Television Consumer Protection And Competition Act of 1992 -- Development of Competition and Diversity in Video Programming Distribution and Carriage, 10 FCC Rcd 3105 (1994).

<sup>22/</sup> See generally, Section B.4.a., above.

capacity will benefit consumers, MVPDs receiving such programming, and DBS operators themselves. *Id.* at ¶61.

MCI also recognizes that the provision of such wholesale programming by a DBS operator to an affiliated MVPD could, under certain circumstances, give rise to anticompetitive abuses. For this reason, MCI suggests that the Commission employ program access and program carriage-type restrictions between DBS operators and affiliated MVPDs, but only when the affiliated MVPD reaches the previously described thresholds of national subscribership or local market penetration.<sup>23/</sup> By tailoring the restrictions in this way, the Commission will achieve its pro-competitive goals while at the same time allowing DBS to develop into a true competitor to cable.

**6. The Commission Should Adopt Other Rule Modifications In Accordance With The Proposals Advanced In The NPRM.**

**a. The Viability of Full-CONUS Coverage From Eastern Orbital Locations Makes The Assignment of DBS Channels in East-West Pairs Unnecessary.**

Events have demonstrated that full-CONUS coverage can be made available efficiently from the orbital slots originally identified as eastern only, obviating the need to use the paired western orbital slots. Thus, there is no longer any rationale for the Commission to adhere to the Continental decision's policy of requiring east-west pairings of DBS channels.<sup>24/</sup> Permitting, but not requiring, DBS operators to hold western orbital slots will encourage more efficient use of the DBS spectrum by operators that wish to target western markets and will

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<sup>23/</sup> See Section B.4.a., above.

<sup>24/</sup> See *Continental Satellite Corp.*, 4 FCC Rcd 6292 (1989), *partial recon. denied*, 5 FCC Rcd 7421 (1990).

allow potential bidders for DBS licenses to more accurately estimate the value of eastern orbital locations that are capable of full-CONUS service. To ensure that these western orbital locations are utilized to the fullest extent possible, the Commission should permit not only western regional services from such locations, but other innovative offerings on an ancillary basis, consistent with the USSB Order<sup>25/</sup> and the increased service flexibility requested above.<sup>26/</sup>

**b. In Order To Ensure That DBS Becomes A Truly Nationwide Service, DBS Operators Should Be Required To Provide Service To Alaska and Hawaii, When Such Service Is Technically Feasible.**

If DBS is to achieve the Commission's goal of a truly nationwide service (NPRM, at ¶67), the Commission should bring DBS regulations into alignment with other domestic satellite rules by requiring DBS permittees to offer service to Alaska and Hawaii.<sup>27/</sup> From eastern orbital locations, the Commission should require such service only when service is not provided from paired western orbital slots, and then only to the extent that is technically feasible, recognizing that physical limitations may not permit operators to provide service to Alaska and Hawaii on identical terms. For example, subscribers in Alaska and Hawaii may be required to utilize larger satellite receive dishes. NPRM, at n.109

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<sup>25/</sup> See United States Satellite Broadcasting Company, Inc., 1 FCC Rcd 977, 978-979 (1986).

<sup>26/</sup> See Section B.3., above.

<sup>27/</sup> See Establishment of Domestic Communications-Satellite Facilities By Non-Governmental Entities, 35 F.C.C.2d 844, 856-859 (1972).

From western orbital locations, where service to Alaska and Hawaii clearly can be provided, permittees should be required to implement such service, or tender their channel authorization to the Commission for auction to new service providers willing to make such services available.

**c. The License Term For Non-Broadcast DBS Satellites Should Be Extended To Ten Years.**

Because DBS satellites will likely have useful lives of greater than ten years, MCI supports the Commission's proposed rule extending the license term for non-broadcast satellites to ten years. NPRM, at ¶71. Extending the license term not only will encourage investment and innovation in the DBS service, as the Commission correctly concluded, but also will allow operators to amortize their operating expenses over a longer period, thereby potentially reducing subscriber costs.

**C. The Commission Should Adopt Its Proposal To Auction Domestic DBS Channels.**

**1. The Commission Has The Authority to Conduct Auctions For The Reclaimed Domestic DBS Authorizations.**

MCI agrees with the Commission's tentative conclusion that it has the authority to use an auction to assign DBS channels reclaimed from ACC. NPRM, at ¶73. First and most significantly, as noted above, the auction of BSS channels that have been specifically assigned to the U.S. for domestic use by an international agreement does not give rise to the

difficult international issues that would otherwise be raised by selling the right to use the orbit/spectrum resource.<sup>28/</sup>

Second, the authorizations to be assigned here have been returned to the FCC by a permittee that was unable to meet its commitments under the Commission's existing DBS rules. As the Commission points out, this means that the new authorizations to be issued are neither renewals or modifications of prior authority, but "initial licenses" under the meaning of the statute. NPRM, at ¶74.<sup>29/</sup> Accordingly, they are subject to the Commission's auction authority under the statute.

Third, given the nature of existing DBS services and MCI's own plans to make use of the reclaimed ACC channels, there is little doubt that the primary use of this spectrum will involve the offering of services on a subscription basis. The statutory requirement that the principal use of the spectrum involve the licensee receiving compensation from subscribers will thus be satisfied.<sup>30/</sup>

Fourth, no one can seriously question the fact, based on the arguments presented in the ACC proceeding, that several parties are likely to apply for the channels reclaimed from ACC. There is therefore a reasonable basis for the Commission to anticipate that there will be mutually exclusive applications for this spectrum. The use of competitive bidding procedures is appropriate for resolving mutually exclusive applications.<sup>31/</sup>

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<sup>28/</sup> See Section B.1., above.

<sup>29/</sup> 47 U.S.C. § 309(j)(1).

<sup>30/</sup> 47 U.S.C. § 309(j)(2)(A).

<sup>31/</sup> 47 U.S.C. § 309(j)(1).

Finally, the auction of the DBS channels at issue here is fully consistent with the principles set forth in the Communications Act. One of the key benefits of using auctions for spectrum assignment is that this mechanism places authorizations in the hands of the entities that value them most. In addition to recovering for the American people a significant portion of the value of the public spectrum resource, this factor promotes prompt implementation of new DBS services and effective utilization of the spectrum. Having paid a premium for the right to make use of important public resources, winning bidders can be expected to move quickly to provide service, promoting the efficient and intensive use of spectrum, as well as the rapid development and deployment of service. In the context of DBS, these considerations can be expected to fulfill the FCC's goals of providing competition to cable television as well as competition from multiple DBS providers in rural areas not served by any cable system. NPRM, at ¶77.

**2. The Commission Should Adopt Competitive Bidding Design And Procedures Which Are Generally Consistent With Those Used In Previous Spectrum Auctions.**

**a. An Upfront Payment Equal To Ten Percent Of The Minimum Opening Bid Should Be Required.**

The Commission proposes, consistent with its practice in all prior auctions, to require an upfront payment from all applicants seeking to bid on the reclaimed ACC channels. The Commission then solicits comment upon the appropriate method of establishing this payment, suggesting that it might be based upon a percentage of the estimated value of the spectrum. NPRM, at ¶¶90-91.

MCI agrees that an upfront payment must be required in order to ensure that only serious, financially qualified bidders are permitted to participate in the auction.

However, because estimates of the value of the spectrum may vary widely, MCI does not believe it would be productive for the Commission to attempt to base the upfront payment on the estimated value of the spectrum. Instead, MCI recommends that the Commission require prospective bidders to submit an upfront payment equal to ten percent of the minimum opening bid. For the 110° W.L. spectrum, this would equate to \$17.5 million -- ten percent of MCI's opening bid of \$175 million. An upfront payment in this amount should be sufficient to achieve the Commission's objective of ensuring that only serious, qualified bidders participate in the auction, but not so large as to deter any qualified entity from seeking to participate in the auction.

**b. MCI Proposes That A Structured Open-Outcry Auction Be Utilized In The Upcoming DBS Auction.**

In response to the Commission's request for comment on the auction procedures proposed in the NPRM, MCI submits the attached paper prepared by Lawrence M. Ausubel, a game theorist and Professor of Economics at the University of Maryland. Professor Ausubel generally supports the proposed open-outcry format. One potentially fatal flaw in the Commission's proposal is the absence of a withdrawal penalty. For the reasons explained by Professor Ausubel, the Commission should incorporate a substantial withdrawal penalty in the open-outcry auction.

Professor Ausubel proposes a set of rules for a "structured open-outcry auction." Principal features of the "structured open-outcry auction" include the enforcement of the FCC's standard bid withdrawal penalty, the clear identification of all bids, the elimination of jump-bidding and the rejection of auctioneer discretion over bid increments and other aspects of the auction.

For the reasons explained in Professor Ausubel's paper at pp. 15-16, the auction should be conducted sequentially, with the 110° license awarded before the 148° license. Professor Ausubel also recommends against implementation of the combined sealed-bid/oral-outcry auction (discussed in the NPRM at ¶83) on several grounds, including the not insubstantial possibility that a combined sealed-bid/oral-outcry auction may result in elimination of the bidder who values the license most highly before the oral-outcry phase of the auction begins.

**c. MCI Reiterates Its Commitment To An Opening Bid Of \$175 Million.**

The Commission also solicits public comment on the minimum opening bid that should be required at the auction. At least with respect to the 28 channels available at 110° W.L., MCI believes that the amount of the appropriate opening bid is already set forth in the record of this proceeding. MCI indicated in October correspondence to Chairman Hundt that it would make an opening bid of \$175 million for the channels at 110° W.L. See NPRM, at ¶72 n.123.<sup>32/</sup> MCI stands by this figure, and believes that the auction should commence with this bid.<sup>33/</sup>

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<sup>32/</sup> Citing Letter from Gerald H. Taylor, President of MCI, to Hon. Reed E. Hundt, Chairman, FCC (dated October 10, 1995).

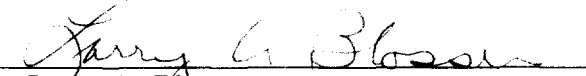
<sup>33/</sup> MCI expresses no opinion on the appropriate opening bid for the 24 channels available at 148° W.L. except that it would expect that such a bid would be proportionately lower than the bid required at 110° W.L.

### III. CONCLUSION

WHEREFORE, for the reasons set forth herein, MCI urges the Commission to take its views into consideration in the revision of its rules and policies for the Direct Broadcast Satellite Service.

Respectfully submitted,  
MCI TELECOMMUNICATIONS CORPORATION

By:

  
Larry A. Blosser  
Carol R. Schultz

Of Counsel:

Norman P. Leventhal  
Raul R. Rodriguez  
David S. Keir  
Renée L. Roland

MCI Telecommunications Corporation  
1801 Pennsylvania Avenue, N.W.  
Washington, D.C. 20006  
(202) 887-2727

Leventhal, Senter & Lerman  
2000 K Street, N.W., Suite 600  
Washington, D.C. 20006  
(202) 429-8970

November 20, 1995

# OPEN-OUTCRY AUCTIONS

## FOR FCC LICENSES

Prepared for  
MCI Telecommunications Corporation

by  
Lawrence M. Ausubel<sup>\*</sup>

November 17, 1995

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<sup>\*</sup>Department of Economics, University of Maryland, College Park, MD 20742; (301) 405-3495;  
ausubel@econ.umd.edu.

## EXECUTIVE SUMMARY

The auction design proposed for the 110° and 148° DBS licenses in the Commission's Notice of Proposed Rulemaking (NPRM) is generally sound, but it contains one fatal flaw. The lack of any withdrawal penalty in the proposed rules would invite bidders to gratuitously impose costs upon their rivals. This would introduce complex forms of strategic behavior into the open-outcry auction, which otherwise ought to be a very simple and straightforward auction form. This would open the door for potentially inefficient allocations of the DBS licenses, as well as for potential diminution of competition in the post-auction market for DBS services. Each of these effects may have a chilling effect on firms' willingness to participate, and so may also reduce the FCC's expected auction revenues. Finally, the lack of withdrawal penalty may enable bidders to prey upon their rivals in a way that would result in a fundamental unfairness, which the FCC ought not to allow.

This paper proposes a specific structure for an open-outcry auction (see Figure 1) which will enable the FCC to assess the same withdrawal penalties which it has applied in the PCS auctions, and so minimize the incidence of predatory bidding behavior. The proposed structure, while straightforward to implement, will also accomplish the goal of maximizing the availability of information to bidders. Furthermore, by eliminating all auctioneer discretion and jump-bidding, it will create a simple and predictable environment for bidders to operate in.

This paper also argues in favor of adopting many of the auction features which were proposed in the NPRM: auctioning all 28 channels at 110° in one parcel; auctioning the two licenses sequentially (as opposed to simultaneously), with the 110° license preceding the 148° license; and using a pure ascending-bid auction (as opposed to some combination of sealed bids and ascending bids).

I have been asked by MCI Telecommunications Corporation (MCI) to examine the Notice of Proposed Rulemaking (NPRM) issued by the Federal Communications Commission (FCC) in connection with the assignment of direct broadcast satellite (DBS) licenses.<sup>1</sup> MCI requested that I critique the auction procedure proposed in the NPRM, suggest improvements, and respond to questions posed in the NPRM, all from the perspective of a game theorist/economist.<sup>2</sup>

This paper contains three parts. In the first part, I propose a "structured open-outcry auction," a specific set of rules which would tangibly implement the auction design proposed in the NPRM. (See also Figure 1.) By introducing a short, no-penalty withdrawal period, it would assuage all concerns that a bid might be entered in error, enabling the FCC to adopt the same sensible withdrawal policy which it has enforced in the narrowband and broadband auctions. It also will provide bidders with greater information and greater predictability midstream in the auction process, enhancing the FCC's expected revenue over a less structured open-outcry design. In the second part of the paper, I provide arguments why certain features of the "structured open-outcry auction" are desirable, including: the enforcement of the FCC's standard withdrawal penalty (following each no-penalty withdrawal period); the clear identification of all bids; the elimination of jump-bidding; and the rejection of auctioneer discretion. In the third part of the paper, I comment on a number of the other questions raised in the NPRM, generally supporting the proposal currently contained in the NPRM: the 28 channels should be sold together in a single parcel; the two DBS licenses should be auctioned sequentially (as opposed to simultaneously), with the 110° license preceding the 148°

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<sup>1</sup> Revision of Rules and Policies for the Direct Broadcast Satellite Service, Notice of Proposed Rulemaking, FCC 95-443, released October 30, 1995.

<sup>2</sup> A copy of my *curriculum vitae* is attached.

license; multiple-round bidding should be utilized for each license; and a pure open-outcry format should be utilized.

**1. A STRUCTURED OPEN-OUTCRY AUCTION.**

The NPRM tentatively concludes that the DBS permits should be auctioned by oral outcry (¶82), but is relatively silent on the details of how the oral outcry auction should be conducted. My objective in this section (and in the accompanying Figure 1) is to propose a well-defined procedure to be followed.

**PROPOSED AUCTION RULES:**

1. A one-minute timer and a five-minute timer are placed in clear view at the front of the auction room. The timers may be analog or digital, but they must be clearly visible to all bidders.
2. A board for displaying the dollar amount of the current (high) bid and the identity of the bidder is also placed in clear view at the front of the auction room. A manual blackboard or whiteboard, or a digital display, will suffice.
3. Whenever a new bid is announced, the bid and the identity of the bidder are recorded on the board. The one-minute timer is activated and, during this one-minute period, the bidder is free to indicate that the bid was placed in error, and to withdraw the bid without penalty. When the one-minute timer has cycled, the “no penalty” bid withdrawal period ends. Any withdrawal of a bid after the end of the associated “no penalty” bid withdrawal period will be subject to the standard FCC withdrawal penalty (which is interpreted for the DBS auctions in Rule 6, below).

4. At the conclusion of each one-minute “no penalty” bid withdrawal period, the five-minute timer is activated, signifying the start of the bid submission period. At any time during the five-minute bid submission period, any bidder is free to announce a new bid. When a new bid is announced, the above process is immediately repeated, without waiting for the five-minute timer to cycle. If no new bid is announced during the five-minute bid submission period, the auction concludes and the winner is announced.
5. The FCC prespecifies the entire sequence of bids which will be permitted in the auction. For the 110° and 148° licenses, the following sequence should be considered: “Integer multiples of \$5 million, up to \$200 million; followed by integer multiples of \$10 million, up to \$400 million; followed by integer multiples of \$20 million.” The auctioneer shall not accept jump bids: for example, if the current high bid is \$220 million, the only acceptable new bid will be \$230 million. The FCC and the auctioneer also shall not retain any discretion in changing the minimum bid increment during the course of the auction.
6. Any withdrawal of or default on a bid outside of the one-minute “no penalty” withdrawal period (immediately following the bid's entry) will disqualify the withdrawing/defaulting party from all subsequent bidding on the same license. In addition, the withdrawing/defaulting party will be subject to the same penalty which the FCC has imposed in the narrowband and broadband auctions:

“(1) *Bid withdrawal prior to close of auction.* A bidder who withdraws a high bid during the course of an auction will be subject to a penalty equal to the difference between the amount bid and the amount of the winning bid the next time the license is offered by the Commission. No withdrawal penalty would be assessed if the subsequent winning bid exceeds the withdrawn bid. This penalty amount will be

deducted from any upfront payments or down payments that the withdrawing bidder has deposited with the Commission.

(2) *Default or disqualification after close of auction.* If a high bidder defaults or is disqualified after the close of such an auction, the defaulting bidder will be subject to the penalty in [paragraph (1)] plus an additional penalty equal to three (3) percent of the subsequent winning bid. If the subsequent winning bid exceeds the defaulting bidder's bid amount, the 3 percent penalty will be calculated based on the defaulting bidder's bid amount. These amounts will be deducted from any upfront payments or down payments that the defaulting or disqualified bidder has deposited with the Commission." (47 C.F.R. § 24.704(a)(1)–(2).)

7. If a withdrawal or default occurs outside of the one-minute "no penalty" withdrawal period (immediately following the bid's entry), but prior to the close of the auction, the FCC retains authority to re-auction the same license on the same day. If a withdrawal or default occurs after the close of the auction, the FCC retains authority to re-auction the same license on the soonest feasible date.
8. In the early stages of the auction (e.g., when new bids are consistently being entered during the first two minutes of the five-minute bid submission period), the FCC may choose to run the one-minute timer and the five-minute timer simultaneously, in order to facilitate the rapid progression of the auction. When the timers are run simultaneously, any bidder is free to announce a new bid before the "no penalty" withdrawal period has ended for the previous high bid. However, neither timer shall ever be activated before such time as the previous bid and the identity of the bidder are properly recorded on the board.
9. To prevent a bidder from strategically delaying the close of the auction, the FCC retains the discretion to limit the number of times that a bidder may re-bid on a license and then withdraw the bid during the "no penalty" withdrawal period.

10. The FCC also retains discretion in granting requests for short interruptions of the auction (e.g., bathroom breaks), as well as for longer interruptions of the auction in case of clear medical emergencies.

## **2. ECONOMIC CONSIDERATIONS FAVORING A STRUCTURED OPEN-OUTCRY AUCTION.**

### **a. THE IMPORTANCE OF WITHDRAWAL PENALTIES: GENERAL BACKGROUND.**

While the formal theoretical treatments of auction theory have generally neglected the incentives for bidders to impose costs upon their rivals, auction theorists have long recognized that such incentives exist and may lead to perverse results. As early as 1976, William Vickrey (considered by many to be the father of modern auction theory) wrote: "Even in a situation where the outcome is in principle determinate and optimal, one does observe bidders seeking in various ways to conceal their identity, making their bids by private signals prearranged with the auctioneer or otherwise. The motivation for this is not clear, though in a multiple auction setting it might be to prevent having one's bids artificially pushed to a higher level by competing bids aimed in part at depleting the bidder's resources and reducing his competitive stance in later items." (Vickrey, 1976, p. 17.) In comparing the results of the nationwide and regional narrowband PCS auctions, Peter Cramton recently observed: "Another explanation for the higher prices in the regional auction is that, because of the obvious interest in single-band nationwide aggregations, firms were able to impose costs on competitors by bidding on a piece of a competitor's nationwide aggregation. There is some evidence of such predatory bidding." (Cramton, 1995b, p. 15.) Paul Milgrom reaches a similar conclusion: "In the regional narrowband auction, there were strategic bids made that served at least five different purposes: ... (2) 'predatory' bids drove up a competitor's price or disrupted its attempts

to establish a system of licenses ..." (Milgrom, 1995, p. 31). David Salant, who was a member of GTE's auction team in the broadband auction, writes: "GTE had three objectives during the early rounds: ... (3) Push the price up in non-target markets, partly to avoid pushing the price up in target markets and partly to induce rivals to spend more money on those markets." (Salant, 1995, p. 14).

Real-world practitioners of auctions are also aware of the potential for this phenomenon (and its implications for discouraging participation in auctions), and they therefore structure their rules to minimize predatory bidding of this type. For example, it is our understanding that auction houses such as Sotheby's and Christie's do not allow bidders to withdraw their bids in oral-outcry auctions; bids are considered legally-binding unless it can be shown that the auctioneer entered them in error. We have been told that the premier auction houses consider the winning bidder to be contractually obliged to take the object at the price bid, and are prepared to take the winning bidder to court if he attempts to avoid making the purchase. It should be emphasized that — if the withdrawal or default were taken to court — damages ought in principle be determined by the standard *expectation measure of damages*, which the FCC correctly replicates in the withdrawal penalty it has enforced in the narrowband and broadband auctions (47 C.F.R. § 24.704(a)(1)).

In a single-object auction, predatory bidding is a very dangerous strategy for a participant. If a predator bids above its own valuation for the purpose of increasing its rival's costs, it faces the very real danger that the rival will drop out, leaving the predator with the obligation of obtaining the license (or paying a stiff withdrawal penalty). However, freely allowing withdrawals without penalty enables bidders to engage in predatory bidding with impunity. The predator bids its rival up and up, never with any worry that it will be stuck winning. In the event that the predator holds the high bid, the predator retains the option of simply withdrawing the bid.

Paul Milgrom, in describing the design of the simultaneous multiple-round auction ultimately adopted for narrowband and broadband, notes: "The proposal to allow free bid withdrawals might seem to be a plausible compromise that addresses a valid concern and could even lead to higher prices. To those trained in game theory, however, it was obvious that such a rule change would devastate the effectiveness of the auction. ... With free bid withdrawals, bids lose much of their meaning. ... the progress of the bidding could be highly erratic, with total prices rising and falling along the way. The length of the auction would become indefinite. Worse, the auction would become vulnerable to a bidder intent on mischief..." (Milgrom, 1995, pp. 21–22.)

In conclusion, it should be emphasized that other governments have had unfortunate experiences using auctions without withdrawal penalties. The classic example is that of the 1993 auctions of satellite television licenses in Australia, which were conducted as first-price sealed-bid auctions without withdrawal penalties. The rules prescribed that if the highest bidder failed to pay its bid amount within a specified period, then the license would revert to the next-highest bidder, who again would be permitted a period of time to make a payment, and so on. In the actual Australian experience, the unwinding of bids continued for ten months, and the ultimate payments were fractional compared to the initial high bids. (Milgrom, 1995, p. 11.) This episode was an embarrassment and a political disaster which ended in officials losing their jobs.

**b. THE IMPORTANCE OF WITHDRAWAL PENALTIES: FORMAL ANALYSIS.**

This section will argue that the absence of withdrawal penalties in an open-outcry auction basically renders it equivalent to a sealed-bid, first-price auction. Since it is widely believed that ascending-bid auctions are superior to sealed-bid auctions and that second-price auctions are superior

to first-price auctions, one can conclude that the absence of withdrawal penalties would reduce both efficiency and expected seller revenues.<sup>3</sup>

Consider a situation where Bidder A values a license at  $v_A$  while Bidder B values the same license at  $v_B$ , where  $v_A > v_B$ . If each bidder is purely self-interested, we would expect that Bidder B will drop out of an open-outcry auction at  $v_B$ , so that Bidder A will win the license at a price of  $v_B$ . However, Bidder B may desire to attempt to inflict costs on Bidder A: perhaps Bidder A is budget-constrained, so that if Bidder A pays a higher price for its license, it will have less money left over to bid on future licenses, or will be less able to afford the buildout costs. In either event, Bidder B may attempt to assure that Bidder A is a less-viable competitor by bidding the price up above  $v_B$ .

If strict withdrawal rules are enforced, Bidder B finds bidding up the price to be highly risky. Bidder B typically does not know  $v_A$ , so Bidder B can never raise Bidder A without incurring the risk that this was Bidder A's final bid. So if Bidder B engages in predatory bidding, there is a significant probability that Bidder B will be forced to either win the license at a price more than  $v_B$  or to pay substantial withdrawal penalties.

Conversely, if free bid withdrawals are permitted, Bidder B faces no adverse consequences from attempting to bid the price all the way up to  $v_A$ . If Bidder B can guess  $v_A$  correctly, then Bidder B drops out of the auction just before the price reaches  $v_A$ . If Bidder B overestimates  $v_A$ , the worst that happens is that Bidder B needs to withdraw his winning bid, and then in the re-auction, Bidder B drops out at a lower price.

On first blush, it is tempting to believe that free bid withdrawals need not interfere with the efficient allocation of licenses, and may even increase the FCC's revenues (from  $v_B$  to  $v_A$ ). However,

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<sup>3</sup>Given the short comment period for the NPRM, the analysis in this section is quite preliminary and may contain errors. However, I believe that the main conclusions reached here will survive further scrutiny.

I will now argue that such reasoning would be incorrect, since it naively assumes that Bidder A would continue to use a sincere-bidding strategy in an open-outcry auction without withdrawal penalties. In fact, free bid withdrawals induce all bidders to change their bidding strategies.

As a first cut at the problem, observe that *if* the open-outcry auction without withdrawal penalties were to admit the efficient outcome, then under independent private values, the Revenue Equivalence Theorem would apply. Thus, the seller's expected revenues cannot be improved by the allowance of free bid withdrawals.

As a second cut at the problem, I claim the following general result: from the perspective of an incompletely-informed bidder, an open-outcry auction with free bid withdrawals takes on the same features as a "Dutch auction," where the announced price follows a descending clock, and the first bidder to raise his hand wins. The reasoning is quite simple. In an open-outcry auction with free bid withdrawals, the relevant part of each bidder's strategy is the highest bid which he is willing to *not* withdraw (i.e., the highest bid which he is willing to let stand). Observe that the ultimate winner of the auction (following whatever series of withdrawals occurs) is the bidder who selects the highest bid to *not* withdraw, and this is the price paid by the winner. Thus, I claim:

THEOREM 1. *The open-outcry auction with free bid withdrawals is essentially the same as the first-price sealed-bid auction (as is the Dutch auction).*

This result has the following implications. In the case of independent private values, if bidders' valuations are drawn from asymmetric distributions, then the auction outcome will be allocatively inefficient in the sense of sometimes providing the license to other than the bidder who values the license the most (see, for example, McAfee and McMillan, 1987, and Ausubel and Cramton, 1995). In the case of affiliation, then even if the bidders' signals and valuations are drawn from symmetric distributions, the auction results in lower expected seller revenues than the open-

outcry auction with a strict withdrawal penalty (Milgrom and Weber, 1992). In any event, the open-outcry auction with free bid withdrawals constitutes a much more complex strategic environment than the same auction with a strict withdrawal penalty, and without the benefit of any offsetting advantages.

**c. THE IMPORTANCE OF PROVIDING PARTICIPANTS WITH BID INFORMATION.**

An extra benefit of the "structured open-outcry auction" is that the auction design specifically provides bidders with reasonably good bid information. It is a principle of auction theory that an auction should be structured in an open fashion which maximizes the information that is available to each participant at the time she places her bids (Milgrom and Weber, 1982). For example, when there is a common-value component to valuation, an open, ascending-bid format may induce participants to bid more aggressively (on average) than in a sealed-bid format, since participants possess greater information at the time they place their final bids and are less likely to fall victim to the "winner's curse". This also has the desirable effect of yielding the seller higher expected revenues.

Along these lines, it has been effectively argued that an ascending-bid auction in which each bidder knows exactly which others are still participating at each moment in time will perform better than an ascending-bid auction where each bidder only knows that there is still at least one rival participating (Milgrom and Weber, 1982; Bikhchandani and Riley, 1991.) By identifying the source of each bid, the "structured open-outcry auction" comes closer than the standard oral auction at providing participants with bid information which enhances the performance of the auction.

It is also widely-noted in the auctions literature that, "at auctions of fine wines and art, auctioneers will generate phantom bids 'off the wall' or 'from the chandelier'." (Vincent, 1995,

p. 575.) This is clearly a practice which the FCC would be wise to avoid. The rules I have proposed in Section 1 — which force the source of every bid to be identified on the front board — will prevent phantom bids from ever occurring in the FCC's open-outcry auctions.

**d. MINIMIZING OF JUMP BIDDING AND AUCTIONEER DISCRETION.**

The “structured open-outcry auction” design also proposes to minimize the existence of jump bidding and auctioneer discretion. The main results on jump bidding are provided in the work of Christopher Avery (1994), which will be discussed at greater length in Part 3d. Avery demonstrates that, in the symmetric affiliated case, the availability of jump bidding enables bidders to effectively convert an open-outcry auction into a first-price sealed-bid auction. A continuum of equilibria exist, with the expected price covering the entire range between that of the first-price auction and the symmetric equilibrium of the second-price auction (Avery, 1994, Proposition 5.7). In particular, it should be noted that, of all these outcomes, the first-price auction yields the seller the *lowest* expected revenues and the second-price auction yields the *highest* (Milgrom and Weber, 1982, Theorem 15). Thus, the FCC has a strong interest in adopting open-outcry auction rules which foreclose jump bidding.

It should be noted that Rule 5 proposed in Section 1 discourages jump bidding by, at each step, requiring bidders to advance only as far as the next bid unit. However, the proposed rules do not entirely foreclose jump bids, as Rule 4 states: “At any time during the five-minute bid submission period, any bidder is free to announce a new bid.” Thus, the rules I propose do allow bidders to raise their own bids, which is similar to jump bidding. The FCC may alternatively wish to consider modifying Rule 4 to say: “At any time during the five-minute bid submission period, any bidder

*other than the current high bidder* is free to announce a new bid." Such a modification would entirely eliminate the phenomenon of jump bids.

The proposed auction structure also attempts to minimize the amount of discretion available to the auctioneer. This is extremely desirable for at least three reasons. First, if bidders know in advance what bid increments are going to be allowed at all times in the auction, it facilitates bidders' abilities to plan full contingent strategies before entering the auction room. This enables the entire proceedings of the auction to be compressed into a single morning, as is envisioned in the rules I propose. Second, the inherent predictability of an auction without auctioneer discretion encourages bidders to bid with maximal aggressiveness, facilitating the revenue objectives of the FCC. Finally, a bidder's decision as to when to drop out of the auction is premised on the bidder's beliefs about the magnitude of the bid increment for future bids. Thus, it is both complicating and perhaps fundamentally unfair for bidders to not be sure what bid increments will be allowed on future bids, opening the door to legal challenges to the auction outcome.

### **3. OTHER ISSUES POSED IN THE NPRM.**

#### **a. ADVISABILITY OF PACKAGING THE 28 CHANNELS TOGETHER.**

In ¶79 of the NPRM, the Commission solicits comment on its tentative decision "not to divide the available blocks of channels into smaller parcels" and so auction the 28 channels at 110° in a single package. This is a sensible plan, which is advisable on efficiency, revenue, and simplicity grounds.

Economic efficiency requires all 28 channels at 110° to be awarded to the same bidder. It is evident to me, from discussions with MCI management, that any smaller grouping of channels will be

insufficient for a new entrant to viably compete with the incumbent providers of DBS service.

Hughes Electronics (DirectTv) is already offering DBS broadcasts on 27 channels. EchoStar Satellite is expected to be offering DBS broadcasts on 21 channels.<sup>4</sup> Given the headstart which these two players will have over new entrants, it appears unlikely that a purchaser at 110° could achieve significant market share while offering service on a smaller number of channels.

Indeed, throughout the *Advanced Communications* proceeding, Primestar has maintained that it needs a full complement of 27 channels to deliver a competitive DBS service: “[Primestar cannot] be an equal DBS competitor without the full array of channels that its arrangement with Tempo and Advanced would provide. [Footnote: If the Advanced Order is not reversed, PRIMESTAR would have access only to the 11 channels currently assigned to an affiliate of Tempo. Those channels would not be adequate for a fully competitive DBS service.]” (Application for Review of Primestar Partners L.P., dated May 22, 1995, p. 16.)

Importantly, the awarding of channels in a configuration conducive to successful entry is beneficial to competition, as well as to competitors. There is a strong public interest in assuring that the ultimate market configuration of the DBS market includes many viable firms. Competition will bring service to more households, and at lower prices, serving one of the FCC's stated objectives in ¶78 of the NPRM to “(2) award licenses to the appropriate parties rapidly, so that consumers will benefit from the competition brought about by new suppliers as soon as possible.”

Let us suppose that the FCC instead packaged the channels as two separate licenses, each consisting of 14 channels. There exist competitive-auction reasons (see Ausubel and Cramton, 1995, and Englebrecht-Wiggans and Kahn, 1995) why the two licenses may end up in the hands of different companies. Such an outcome would be economically inefficient, and contrary to the FCC's stated

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<sup>4</sup>1995/96 *World Satellite Yearly*, Baylin Publications, pp. T-17–T-21.